

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		EXPRESS MAIL LABEL No EL 905055836 US	DATE January 14, 2002
		ATTORNEY'S DOCKET NO 003295.098708	
		U.S. APPLICATION NO <div style="font-size: 1.5em; font-weight: bold;">10/031432</div>	
INTERNATIONAL APPLICATION NO PCT/EP00/10712	INTERNATIONAL FILING DATE October 31, 2000	PRIORITY DATE CLAIMED November 3, 1999	
TITLE OF INVENTION POSTAL SORTING PROCESS INCLUDING RECOVERY OF ERRORS IN READING CODES AFFIXED TO THE MAIL ITEMS			
APPLICANT(S) FOR DO/EO/US Bruno Volta			
<p>Applicant herewith submits to the United States Designated /Elected Office (DO/EO/US) the following items and other information:</p> <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. 3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(I). 4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date 5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)) <ol style="list-style-type: none"> a. <input type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau). b. <input checked="" type="checkbox"/> has been transmitted by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). 6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)). 7. <input checked="" type="checkbox"/> A copy of the International Search Report (PCT/ISA/210) <ol style="list-style-type: none"> a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau). b. <input checked="" type="checkbox"/> have been transmitted by the International Bureau c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). <p>Items 11. to 16. below concern other document(s) or information included:</p> <ol style="list-style-type: none"> 11. <input type="checkbox"/> A copy of the International Preliminary Examination Report (PCT/IPEA/409) 12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 13. <input type="checkbox"/> A FIRST preliminary amendment. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 14. <input type="checkbox"/> A substitute specification. 15. <input type="checkbox"/> A change of power of attorney and/or address letter. 16. <input checked="" type="checkbox"/> Other items or information: <ol style="list-style-type: none"> a. <input checked="" type="checkbox"/> a copy of the International Search Report (PCT/ISA/210) b. <input checked="" type="checkbox"/> a copy of the International Preliminary Examination Report (PCT/IPEA/409) c. <input checked="" type="checkbox"/> PCT application No. <u>PCT/EP00/10712</u> was published in English under publication number <u>WO 01/32322</u> on <u>May 10, 2001</u>. 			

INTERNATIONAL APPLICATION NO
PCT/EP00/10712

INTERNATIONAL FILING DATE
October 31, 2000

JG13 Rec'd PCT/PTO 14 JAN 2002

PRIORITY DATE CLAIMED
November 3, 1999

17. [X] The following fees are submitted:

Basic National Fee (37 CFR 1.492(a)(1)-(5):

Neither international preliminary examination fee (37 CFR 1.482)

Nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO (1.492(a)(3)) \$1,040.00

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO (1.492(a)(5)) \$890.00

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO (1.492(a)(2)) \$740.00

International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) (1.492(a)(1)) \$710.00

International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) \$100.00

ENTER APPROPRIATE BASIC FEE AMOUNT = \$890.00

Surcharge of \$130.00 for furnishing the oath or declaration later than [] 20 [] 30 months from the earliest claimed priority date (37 C.F.R. 1.492)(e)).

\$0.00

Claims	Number Filed	Number Extra	Rate	\$	
Total Claims	2 - 20=	0	X \$ 18.00	\$ 0.00	
Independent Claims	1 - 3=	0	X \$ 84.00	\$ 0.00	
Multiple dependent claim(s) (if applicable)			+ \$280.00	\$ 0.00	
TOTAL OF ABOVE CALCULATIONS =				\$ 890.00	
Reduction by 1/2 for filing by small entity, if applicable				\$ 0.00	
SUBTOTAL =				\$ 890.00	
Processing fee of \$130.00 for furnishing the English translation later than [] 20 [] 30 months from the earliest claimed priority date (37 CFR 1.492(f)). +				\$	
TOTAL NATIONAL FEE =				\$ 890.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +				\$ 0.00	
TOTAL FEES ENCLOSED =				\$ 890.00	
				Amt. refunded	\$
				charged	\$

a. [X] A check in the amount of \$890.00 to cover the above fees is enclosed.

b. [] Please charge our Deposit Account No. 50-1145 in amount of \$ to cover the above fees. A copy of this sheet is enclosed.

c. [X] The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 50-1145. A copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

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2/p12

WO 01/32322

1

PCT/EP00/10712

Postal sorting process including recovery of errors in reading codes affixed to the mail items

The invention pertains to a postal sorting process according to which mail items are sorted by machine in first sorting offices so as to compile ordered batches of mail items each corresponding to a certain zone of distribution of the mail items of the relevant batch, and in which said batches of mail items originating from various first sorting offices and corresponding to one and the same distribution zone are processed by machine in a second sorting office so as to compile one or more mailman's rounds, a machine-readable sort code indicative of a distribution address being affixed to each mail item during sorting in one of said first sorting offices with a view to being used during the processing of this mail item in the second sorting office.

The invention applies most particularly to postal sorting in handling sorting offices and subsequently in distribution sorting offices. The machine-readable sort code which is affixed to each mail item during the handling sorting phase is a matrix code, for example a bar code. In the distribution sorting phase where the mailman's rounds are prepared, errors in reading the distribution codes affixed to the mail items may be fairly frequent. These errors may be due to poor printing of the code on the mail item or to poor presentation of the mail item in front of the code reader. These reading errors penalize the performance of the distribution sorting machines and the object of the invention is to remedy this drawback.

To this end, the subject of the invention is a postal sorting process according to which mail items are sorted by machine in first sorting offices so as to compile ordered batches of mail items each corresponding to a certain zone of distribution of the mail items of the relevant batch, and in which said batches of mail items originating from various first sorting offices and corresponding to one and the same distribution zone are processed by machine in a second sorting office so as to compile one or more mailman's rounds, a machine-readable sort code indicative of a distribution address being affixed to each mail item during sorting in one of said first sorting offices with a view to being used during the processing of this mail item in the second sorting office, characterized in that it furthermore consists in compiling in said first sorting offices, ordered lists of said codes which are representative of the order of the mail items in said batches of mail items; in transferring said lists of codes from the first sorting offices to the second sorting office; and during the processing of the batches of mail items in the second sorting office, in comparing the codes read by machine on the mail

items with the codes extracted from said lists of codes with a view to recovering errors in reading said codes by machine.

The invention helps to improve considerably the effectiveness of the handling sorting and distribution sorting phases. The process according to the invention can easily be implemented if the lists of codes are transferred from the first sorting offices (the handling sorting offices) to the second sorting office (a distribution sorting office) by way of a computerized telecommunication network. This implementation may be effected on an existing pool of sorting machines without it being necessary to modify the organization of the successive sorting operations in the handling sorting offices and in the distribution sorting offices.

An exemplary implementation of the postal sorting process according to the invention is described hereinafter and illustrated in the drawings.

Figure 1 very diagrammatically illustrates a first handling sorting phase in two handling sorting offices.

Figure 2 very diagrammatically illustrates a second distribution sorting phase in a distribution sorting office.

Figure 3 illustrates the comparing of the codes read by machine on the mail items and the codes extracted from the lists of codes.

A postal procedure for sorting mail therefore breaks down into several successive sorting phases performed initially in first regional sorting offices, so-called handling sorting offices, then subsequently in second regional sorting offices, so-called distribution sorting offices. Each sorting office has sorting machines which enable it to process the mail posted in the region assigned to it.

In a handling sorting office, sorting consists in separating the mail items received into various batches of mail items, the mail items making up a batch of mail items being intended to be distributed in a certain geographical zone. The definition of handling sorting, that is to say the grouping into batches as a function of distribution zones, is the same in all the handling sorting offices. In Figure 1, this handling sorting phase has been illustrated in two handling sorting offices CTA1 and CTA2. In each handling sorting office, mail items A in a stack are loaded into a sorting machine illustrated by a block, respectively 1 and 2. The machine 1 of the office CTA1 compiles various batches of mail items indicated by L11, L12 and L13 each corresponding to a certain distribution zone of the mail items of the relevant batch. The machine 2 of the office CTA2 also compiles various batches of mail items indicated by L21, L22 and L23 also each corresponding to a certain postal distribution zone. It is of course understood that Figure 1 only illustrates a small number of batches which in reality are much more

numerous on exiting each sorting machine. Each batch of mail items is packed into a box so as to be easily transported to a distribution sorting office.

As illustrated in Figure 1, each sorting machine 1, 2 respectively, comprises a device 11, respectively 21, for reading and analyzing the postal distribution address of each mail item A processed by the machine and a device 12, respectively 22, for printing a sort code on each mail item which is machine-readable and which is indicative of the postal distribution address of this mail item which has been read by the device 11, respectively 21. This code makes it possible to speed up the subsequent sorting operations carried out on the coded mail items. This code is conventionally a bar code which directly identifies the destination of the mail item or else constitutes a unique identifier of the mail item which serves to retrieve the destination of the mail item from a database.

It is of course understood that the devices 11 and 12 of the sorting machine 1 and the devices 21 and 22 of the sorting machine 2 are organized around a microcomputer (or a similar electronic control unit) which governs the sorting procedure in the sorting machine to which it is assigned. Each microcomputer governing the sorting procedure in a sorting machine such as 1 or 2 is able to compile for each batch of mail items compiled by the sorting machine, an ordered list of sort codes which is representative of the order of the mail items in the relevant batch of mail items. In Figure 1, C11, C12 and C13 respectively designate the lists of codes compiled by the sorting machine 1 in respect of batches L11, L12 and L13 in the sorting office CTA1. Likewise, C21, C22 and C23 respectively designate the lists of codes compiled by the sorting machine 2 in respect of batches L21, L22 and L23 in the sorting office CTA2. These lists of codes are in practice electronic files which can be transferred by way of a computerized telecommunication network from the handling sorting office where they have been compiled to one or more distribution sorting offices, doing so in parallel with the transporting of the boxes of mail items.

To simplify the description of the process according to the invention, the batches L11 and L21 compiled respectively in the handling sorting offices CTA1 and CTA2 will be regarded as corresponding to one and the same distribution zone.

Figure 2 illustrates a distribution sorting phase which is carried out in a distribution sorting office CTD to which the batches of mail items L11 and L21 have been transferred together with the corresponding lists of codes C11 and C21. In this sorting office CTD, the batches of mail items L11 and L21 are merged and loaded into a sorting machine illustrated by the block 3 which, in one or more passes, compiles one or more mailman's rounds indicated by T1, T2, T3. The

sorting machine 3 comprises a reader 31 of the sort codes affixed to the mail items, for example a bar code reader, this making it possible to speed up the sorting procedure. In practice, the mail items A constituting the batches L11 and L21 are stacked and serialized before each traveling past the reader 31 so as to be sorted. Although the operations for destacking and for placing the mail in the boxes are usually manual, one can regard the order of destacking of the mail items A in the sorting machine 3 as generally being identical to the order in which the mail items have been stored in a box originating from a handling sorting office. The sorting procedure of the sorting machine 3 is also governed by a microcomputer or similar which is able to compare the codes obtained by the reader 31 on the mail items A with the codes extracted from the lists of codes C11 and C12 so as to recover reader 31 reading errors.

More particularly in Figure 3, this entails comparing a current sequence S of codes read by the reader 31 during the destacking of the mail items with a sequence of the same depth in the lists of codes supplied to the sorting machine 3, here C11 and C12, so as to identify at 10 in one of these lists of codes, the sequence of codes which corresponds to the current sequence of codes which is obtained by the reader 31. Thus, when a code affixed to a mail item cannot be read off by the reader 31 from this mail item, as indicated by the code ?, for example because this code is poorly printed or because the mail item is not properly presented in front of the reader, the code sequence identified in one of the lists of codes, in the exemplary case the list C21, is used to automatically deduce by association for example (code ? = code D) at 20 the value of the code which could not be read by the reader 31. The depth of the code sequences compared must be sufficient to avoid erroneous corrections. A depth of more than three mail items may typically be used. It is however limited by the time available between the instant at which the code of a mail item is read by the reader 31 and the instant at which this mail item is routed to a sorting receptacle.

CLAIMS

1. A postal sorting process according to which mail items (A) are sorted by machine (1, 2) in first sorting offices (CTA1, CTA2) so as to compile ordered batches of mail items (L11-L23) each corresponding to a certain zone of distribution of the mail items of the relevant batch, and in which said batches of mail items originating from various first sorting offices and corresponding to one and the same distribution zone (L11, L21) are processed by machine in a second sorting office (CTD) so as to compile one or more mailman's rounds (T1, T2, T3), a machine-readable sort code indicative of a distribution address being affixed to each mail item during sorting in one of said first sorting offices with a view to being used during the processing of this mail item in the second sorting office, characterized in that it furthermore consists in compiling in said first sorting offices, ordered lists (C11-C23) of said codes which are representative of the order of the mail items in said batches of mail items; in transferring said lists of codes from the first sorting offices to the second sorting office; and during the processing of the batches of mail items in the second sorting office, in comparing (10) the codes read by machine on the mail items with the codes extracted from said lists of codes with a view to recovering errors in reading said codes by machine.

2. The process according to claim 1, in which said lists of codes are transferred from the first sorting offices to the second sorting office by way of a telecommunication network.

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99/13721 3 November 1999 (03.11.1999) FR

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(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

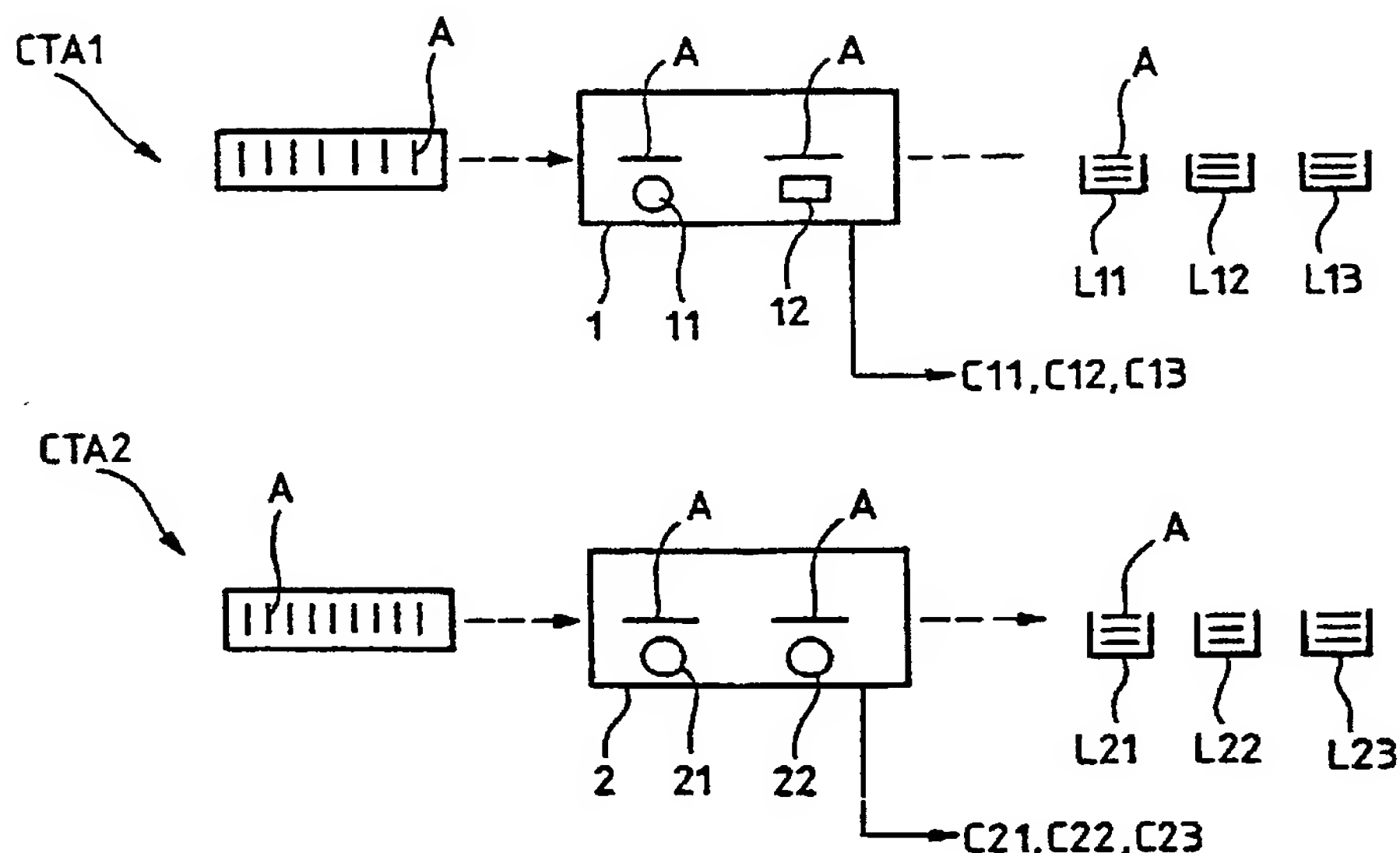
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— With international search report.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: POSTAL SORTING PROCESS INCLUDING RECOVERY OF ERRORS IN READING CODES AFFIXED TO THE MAIL ITEMS

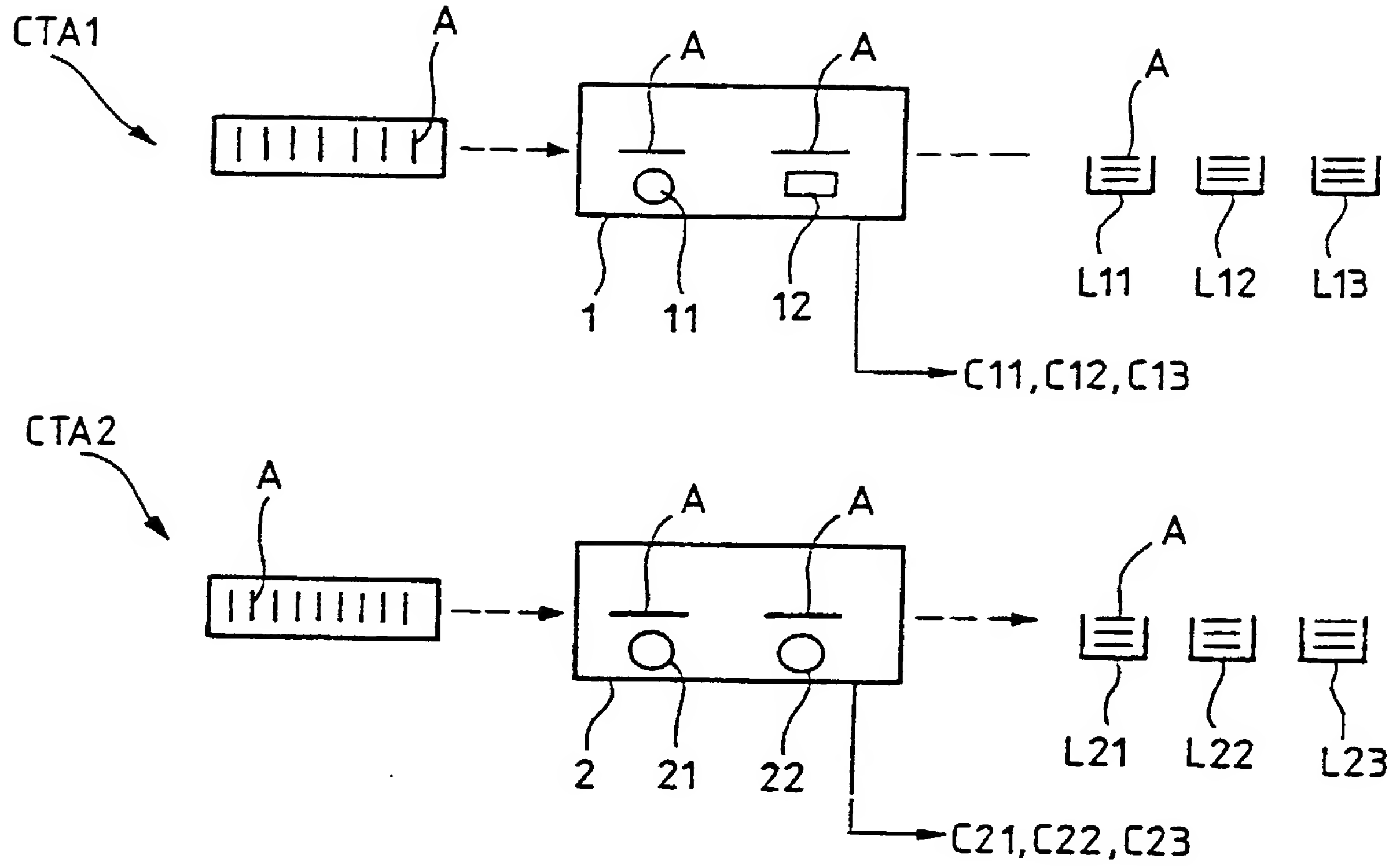


(57) Abstract: In this postal sorting process, ordered lists (C11-C23) of the sort codes affixed to the mail items are compiled in the handling sorting offices (CTA1, CTA2), these lists being representative of the order of the mail items in the batches of mail items compiled during the handling sorting phase. These lists of codes are transferred from the handling sorting offices to the distribution sorting offices and during the processing of the batches of mail items in a distribution sorting office, the codes read by machine on the mail items are compared with the codes extracted from said lists of codes with a view to recovering errors in reading said codes by machine.

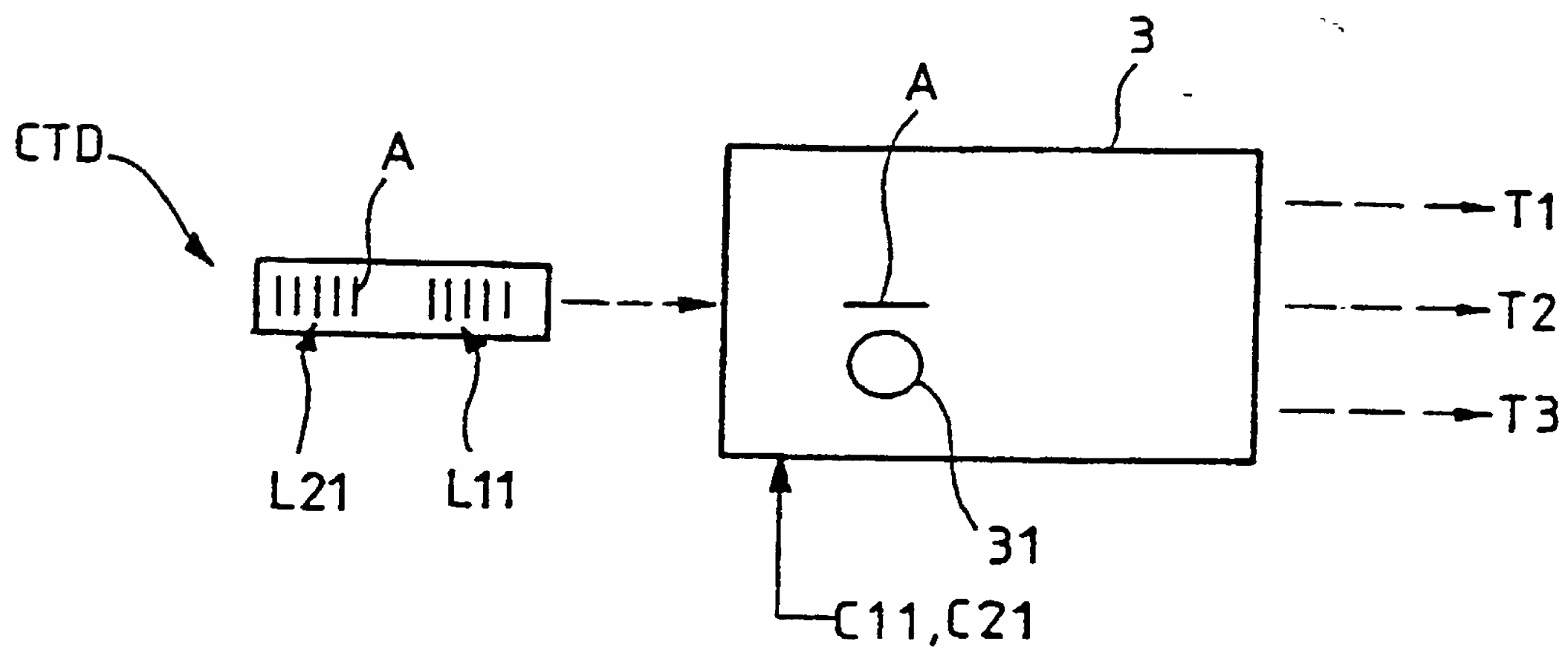
WO 01/32322 A1

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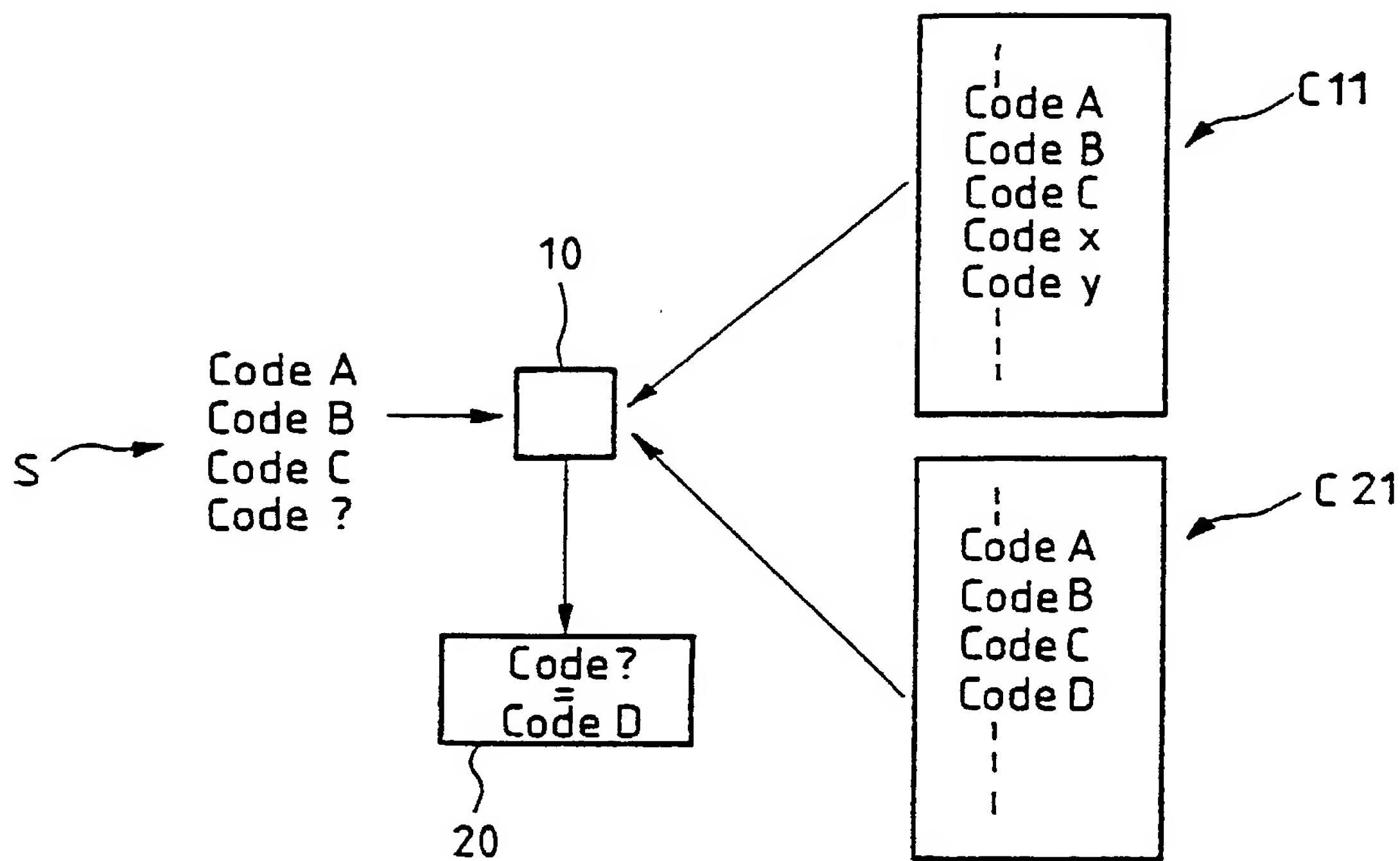
FIG_1



FIG_2



FIG_3





**COMBINED DECLARATION
AND POWER OF ATTORNEY**

(Original, Design, National Stage of PCT, Divisional, Continuation or C-I-P Application)

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name; I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**POSTAL SORTING PROCESS INCLUDING RECOVERY OF ERRORS IN READING
CODES AFFIXED TO THE MAIL ITEMS**

This declaration is of the following type:

- ☐ original
- ☐ design
- ☒ national stage of PCT/EP00/10712.
- ☐ divisional
- ☐ continuation
- ☐ continuation-in-part (C-I-P)

the specification of which: *(complete (a), (b), or (c))*

- (a) ☐ is attached hereto.
- (b) ☒ was filed on 1/14/02 as Application Serial No. 10/031,432 and was amended on *(if applicable)*.
- (c) ☐ was described and claimed in PCT International Application No. _____ filed _____ on _____ and was amended on *(if applicable)*.

Acknowledgment of Review of Papers and Duty of Candor

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims; as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of the subject matter claimed in this application in accordance with Title 37, Code of Federal Regulations § 1.56.

☐ In compliance with this duty there is attached an information disclosure statement. 37 CFR 1.98.

Priority Claim

I hereby claim foreign priority benefits under Title 35, United States Code, § 119(a)-(d) of any foreign application(s) for patent or inventor's certificate or of any PCT International Application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT International Application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application on which priority is claimed

(complete (d) or (e))

- (d) ☐ no such applications have been filed.
(e) ☒ such applications have been filed as follows:

PRIOR FOREIGN/PCT APPLICATION(S) FILED WITHIN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO SAID APPLICATION				
COUNTRY	APPLICATION NO.	DATE OF FILING (day, month, year)	DATE OF ISSUE (day, month, year)	PRIORITY CLAIMED UNDER 35 USC 119
				<input type="checkbox"/> YES NO <input type="checkbox"/>
				<input type="checkbox"/> YES NO <input type="checkbox"/>
				<input type="checkbox"/> YES NO <input type="checkbox"/>
ALL FOREIGN APPLICATION[S], IF ANY, FILED MORE THAN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO SAID APPLICATION				
France	N 99 13 721	November 3, 1999		<input checked="" type="checkbox"/> YES NO <input type="checkbox"/>
				<input type="checkbox"/> YES NO <input type="checkbox"/>
				<input type="checkbox"/> YES NO <input type="checkbox"/>

Claim for Benefit of Prior U.S. Provisional Application(s)

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

Provisional Application Number	Filing Date

Claim for Benefit of Earlier U.S./PCT Application(s) under 35 U.S.C. 120

(complete this part only if this is a divisional, continuation or C-I-P application)

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior application(s) in the manner provided by the first paragraph of Title 35, United States Code § 112, I acknowledge the duty to disclose information as defined in Title 37, Code of Federal Regulations, § 1.56 which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

PCT/EP00/10712	October 31, 2000	pending
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)

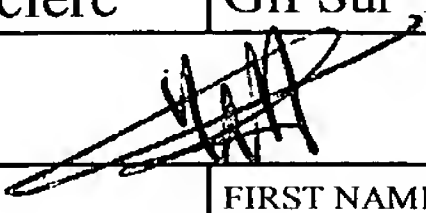
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)

Power of Attorney

⑥ As a named inventor, I hereby appoint Gerald Levy, Reg. No. 24,419; Ronald E. Brown, Reg. No. 32,200; Marta E. Delsignore, Reg. No. 32,689; John Gulbin, Reg. No. 33,189; Lindsay Adams, Reg. No. 36,425; and Michael P. Stanley, Reg. No. 47,108, of the firm of Pitney, Hardin, Kipp & Szuch, with offices at 685 Third Avenue, New York, New York 10117-4024, as attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith

SEND CORRESPONDENCE TO: Pitney, Hardin, Kipp & Szuch 685 Third Avenue, New York, NY 10017	DIRECT TELEPHONE CALLS TO: Pitney, Hardin, Kipp & Szuch (212) 297-5800
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

FULL NAME OF SOLE OR FIRST INVENTOR	LAST NAME <u>Volta</u>	FIRST NAME <u>Bruno</u>	MIDDLE NAME	
RESIDENCE & CITIZENSHIP	CITY <u>Gif Sur Yvette</u>	STATE or FOREIGN COUNTRY <u>France</u> <u>FRX</u>	COUNTRY OF CITIZENSHIP <u>France</u>	
POST OFFICE ADDRESS	POST OFFICE ADDRESS <u>160 avenue du General Leclerc</u>	CITY <u>Gif Sur Yvette</u>	STATE or COUNTRY <u>France</u>	ZIP CODE <u>F-91190</u>
DATE <u>14.05.2002</u>	SIGNATURE OF INVENTOR 			
FULL NAME OF THIRD JOINT INVENTOR, IF ANY	LAST NAME	FIRST NAME	MIDDLE NAME	
RESIDENCE & CITIZENSHIP	CITY	STATE or FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP	
POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE or COUNTRY	ZIP CODE
DATE	SIGNATURE OF INVENTOR			
FULL NAME OF FOURTH JOINT INVENTOR, IF ANY	LAST NAME	FIRST NAME	MIDDLE NAME	
RESIDENCE & CITIZENSHIP	CITY	STATE or FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP	
POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE or COUNTRY	ZIP CODE
DATE	SIGNATURE OF INVENTOR			
FULL NAME OF FIFTH JOINT INVENTOR, IF ANY	LAST NAME	FIRST NAME	MIDDLE NAME	
RESIDENCE & CITIZENSHIP	CITY	STATE or FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP	
POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE or COUNTRY	ZIP CODE
DATE	SIGNATURE OF INVENTOR			
FULL NAME OF SIXTH JOINT INVENTOR, IF ANY	LAST NAME	FIRST NAME	MIDDLE NAME	
RESIDENCE & CITIZENSHIP	CITY	STATE or FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP	
POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE or COUNTRY	ZIP CODE
DATE	SIGNATURE OF INVENTOR			

Check proper box(es) for any added page(s) forming a part of this declaration

- ☐ Signature for ninth and subsequent joint inventors. Number of pages added _____.
- ☐ Signature by administrator(trix), executor(trix) or legal representative for deceased or incapacitated inventor. Number of pages added _____.
- ☐ Signature for inventor who refuses to sign, or cannot be reached, by person authorized under 37 CFR 1.47. Number of pages added _____.